

## SSRL

# Stanford Synchrotron Radiation Lightsource

SSRL produces extremely bright X-ray light for probing our world at the atomic and molecular level. More than 1,500 scientists from all over the world use it each year for research that benefits every sector of the American economy. Their work spurs advances in energy production, environmental cleanup, nanotechnology, new materials and medicine.

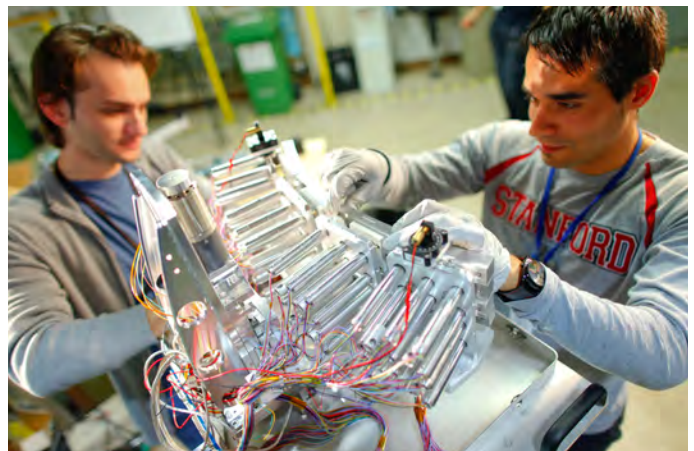


### Tools for Discovery

Research at SSRL has improved the design of fuel cells, revealed the very nature of bacteria and viruses, exposed how genetic mutations may cause diabetes and mapped the structures of proteins for use in biology and medicine.

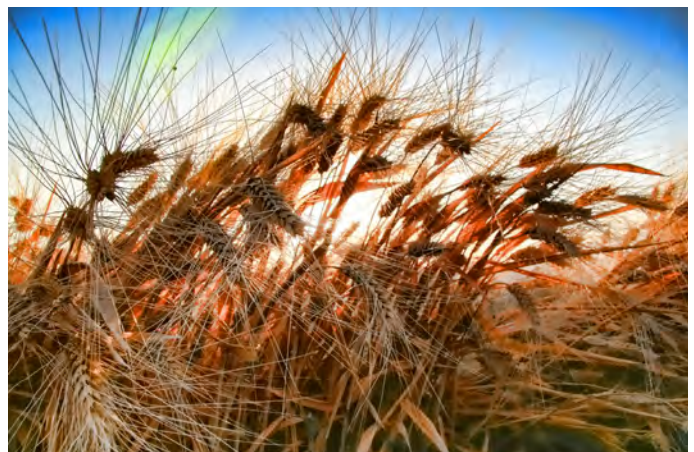
### A Magnet for Research and Training

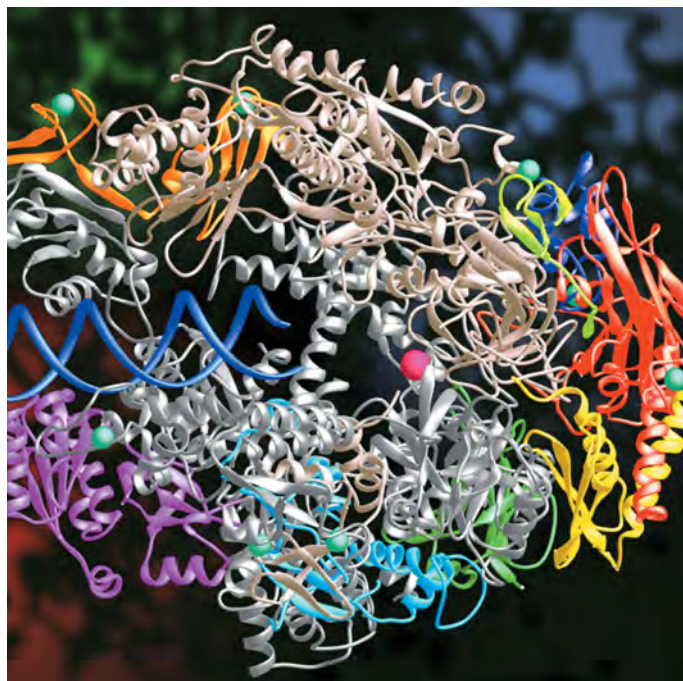
As one of the world's pioneering centers of X-ray science, SSRL is known for its outstanding support and training for scientists and engineers. Researchers from a wide variety of fields have published more than 10,000 scientific papers based on work at SSRL since it opened in 1974.



### Mimicking Nature

Making nitrogen fertilizer to nourish crops consumes about 1.5 percent of the world's energy. Scientists at SSRL are working to understand how natural reactions in the soil make plant food from nitrogen. The long-term goal is to develop green manufacturing processes that mimic nature and use much less energy.





### Saving Lives

Pharmaceutical companies use the SSRL beam lines to find potential drugs that fit snugly into targets in the cell. Research here contributed to the development of Vemurafenib, a treatment for late-stage or inoperable melanoma, and Osteltamivir, a widely used antiviral drug marketed as Tamiflu, as well as a number of other remedies.

### Improving Solar Cells

By packing molecules closer together, scientists have developed a semiconductor material that is among the speediest yet. This material—and the innovative process used to manufacture it—may significantly improve the efficiency and cost of organic solar cells used to turn the sun's rays into usable energy.

### Spurring New Companies

By partnering with start-up companies such as Xradia (imaging products), XIA (detector instrumentation) InSync (custom high-tech mirrors) and Cocystal Discovery (drug design), SSRL has enabled technical advancements that would otherwise not have been possible. These start-ups create jobs and give advanced technologies a foothold in the commercial market.



### SSRL Facts

- 185 staff members
- 1,515 scientists conducted experiments in 2011
- 10,200+ refereed publications since 1974
- 4,851 operating hours in 2011
- 26 experimental stations

